

REMARKS/ARGUMENTS

Claims 1-12 and 22-31 were objected to because of informalities regarding recitation of which claims have been cancelled versus which claims have been withdrawn. This objection should be withdrawn as Applicant has now confirmed that claims 1-12 and 30 have been cancelled, and that claims 22-29 and 31 have been withdrawn. Applicant reminds the Examiner of the Petition under Rule 1.144 which was filed by a Certificate of Mailing on January 6, 2003, in which the Applicant traversed the Examiner's final restriction requirement with respect to claims 22-29 and 31.

Claims 13, 15 and 18-21 were rejected under Section 103 as being unpatentable over Chung et al. in view of Tsujino et al. The Examiner asserted that Chung teach a method of assembling a disk drive as claimed however, that Chung do not disclose a film lubricant applied at least on the outer surface of the swage boss. The Examiner then concluded that Tsujino teach such application of a lubricant. Therefore, it would have been obvious to modify the swaging process of Chung by using a lubrication oil to the outside of the swage boss as taught by Tsujino in order to prevent damage to a head/suspension assembly by a friction force during swaging. Applicant respectfully traverses this rejection under Section 103.

To establish a prima facie case of obviousness under 35 U.S.C. §103(a), the Examiner must show that: (1) the references teach all of the elements of the claimed invention, (2) the references contain some teaching, suggestion or motivation to combine the references, and (3) the references suggest a reasonable expectation of success. See MPEP §2142. See also In re

Application No. 09/975,593

Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); In re Kotzab, 217 F.3d 1365, 55 USPQ2d 1313 (Fed. Cir. 2000).

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998).

If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Chung is solely directed to providing lubricated swage balls for reducing the forces imparted in the actuator which occur during swaging. Chung is absolutely silent as to lubricating any other parts of the actuator assembly. The present invention does not claim actual lubrication of the swage ball or the surfaces which come into contact with the swage ball; rather, invention relates to lubrication of those parts that do not come into contact with the swage ball, and are lubricated for not only the purpose of reducing contamination in a swaging operation, but also for reducing torque out retention values in a subsequent de-swaging process. As claimed in independent claim 13, the surface that is claimed as being lubricated in the present invention is the outer surface of the swage boss that does not make contact with the swage ball.

As for the Tsujino reference, Applicant disagrees that this reference is properly combinable with Chung. Tsujino lacks basic disclosure regarding any type of swaging operation, much less lubrication of parts involved in a swaging operation. The Examiner indicated that in Tsujino, reference numeral 77 corresponded to a swage plate, and that reference numeral 71 corresponded to a swage boss. In Tsujino, these elements are not used in a swaging operation to assemble an actuator arm; rather, these elements are used as a conventional threaded bolt or fastener which cooperates with a nut 73 in order to assembly the actuator assembly. Referring to column 5, lines 24-67 and column 6, lines 1-48, Tsujino describes a stacked actuator arm assembly suitable for a washing method and method for making the assembly. Pivot 71 is inserted through the opening in the actuator assemblies, and the threaded portion of the pivot 71 receives nut 73 for coupling the nut to the pivot. The head portion 77 is used as a bearing member to allow a compression attachment by tightening the nut 73 to a degree so that the actuator assemblies are properly secured. Thus, it is clear that Tsujino has no disclosure of a swaging operation, much less disclosure of any type of lubrication applied. The only reference to lubrication in the Tsujino reference is with respect to the prior art, and at column 1, lines 59-63, Tsujino states:

However, since the actuator arm assembly includes the pivot 18 as a component and the pivot uses a lubricating oil in its inner bearing, the assembly cannot be immersed wholly in the superpure water for washing.

This passage in Tsujino simply indicates that at the pivot 18, some lubrication can be used on the inner bearing of the pivot; however, there is no reference here in Tsujino that the prior art pivot is attached by swaging. Thus, while Tsujino may generally refer to some type of lubrication that

can be provided at the pivot of the actuator arm assembly, Tsujino discloses nothing in regards to lubrication for swaging, and certainly discloses no type of lubrication for attachment of a suspension arm to an actuator arm.

In order for Chung to be modified to obviate the invention as claimed, not only do the references need to contain some teaching, suggestion or motivation to do so, but also the references must suggest a reasonable expectation of success. There is simply no disclosure or teaching within Chung for lubrication of any parts of the actuator assembly and as Tsujino lacks disclosure regarding lubrication for swaging operations, and has no teaching for lubricating an attachment of a suspension arm to an actuator arm. Thus, there is no motivation to combine the references. There is no expectation of success because there is no motivation to combine the references in the first instance.

Applicant recognizes that the rationale to modify or combine the prior art does not have to be expressly stated in the prior art; rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed.Cir. 1988). In the present case, none of the references fairly imply or suggest lubrication of any part or component other than the swage ball and the inner bearing of the pivot. Particularly in disk drives, it is asserted that the type and manner in which lubrication is used to assemble or disassemble components may actually contribute to contamination of the disk drive. For disk drives, simply providing lubrication to any part in the disk drive does not always achieve an advantageous result in terms of reducing contamination.

Thus, a teaching of lubricating the inner bearing surface of the pivot cannot be interpreted also as an inherent teaching of lubrication for an outer surface of a swage boss.

Claim 13 has also been amended to further distinguish over the cited references. More specifically, claim 13 has been amended to recite that the suspension arm has an opening, and that the swage boss is inserted through both the opening in the suspension arm and through the opening in the actuator arm. As shown in Figure 2 of the present application, the suspension arm includes the base portion 41 and the opening 40 formed therethrough. As shown in Figure 4, the swage boss is inserted through both the opening in the suspension arm and the opening in the actuator arm. In Chung, referring specifically to Figure 6, the swage boss is inserted through the sole opening in the actuator arm. It is presumed that the swage plate 160 is somehow attached to the suspension arm; however, the Chung reference does not disclose such an attachment. In any event, Chung is clearly deficient in disclosing the claimed arrangement where a swage boss is inserted through both an opening in the suspension arm and actuator arm.

As for dependent claim 15, the Examiner stated that Chung et al. teaches a process of applying a lubricant by immersing the swage ball into a dilute solution containing the lubricant as disclosed in column 4, lines 39-53. Claim 15 of the present invention does not claim depositing lubricant on the swage ball. Rather, claim 15 recites that the film is deposited upon the swage boss by immersing the swage boss in a dilute solution containing the film lubricant and then draining the solution at a selected rate or raising the swage boss out of the coating solution at a desired rate. Therefore, the rejection with respect to claim 15 should also be withdrawn.

Claims 18-21 depend directly or indirectly from independent claim 13 and should also be allowed.

Claim 14 was rejected under Section 103 as being unpatentable over Chung in view of Tsujino and further in view of Ghose. Ghose fails to cure the deficiencies in both Chung and Tsujino. Therefore, claim 14 should also be allowed.

Claims 16 and 17 were rejected under Section 103 as being unpatentable over Chung et al. in view of Tsujino et al., and further in view of Fisher et al. Claims 16 and 17 depend from independent claim 13. Fisher also fails to cure the deficiencies in Chung and Tsujino. Therefore, this rejection should also be withdrawn.

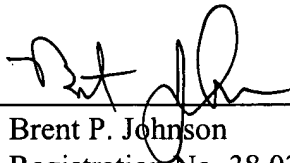
New claim 32 has been added to further claim the present invention. Claim 32 is allowable over the prior art of record for many of the reasons as set forth above with respect to the discussion of the Chung and Tsujino references. More specifically, Tsujino fails to disclose any relevant teachings regarding lubrication for swaging, and Chung is deficient not only in terms of disclosure of lubrication, but also deficient in teaching the basic structure of the claimed invention which requires the swage boss to be inserted through both the opening in the suspension arm and through the opening in the actuator arm.

Application No. 09/975,593

Applicant has made a sincere effort to place the application in a condition for allowance; therefore, such favorable action is earnestly solicited. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

SHERIDAN ROSS P.C.

By: 
Brent P. Johnson
Registration No. 38,031
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: 9/14/05

J:\3123\379\amendment to 6-14-05 OA.wpd